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NEW AMERICAN SPIDERS OF THE FAMILY CLUBIONIDAE. I

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In the course of rearrangement and study of the American spiders of the family Clubionidae in The American Museum of Natural History, a considerable number of new species have been noted. The present paper, the first of a series in which various groups of this family will be considered, consists of descriptions of twenty-two species diagnosed as new and synonymic notes on various other species belonging to the subfamily Liocraninae. Unless otherwise indicated, the types are deposited in the collection of The American Museum of Natural History.

It is a pleasure to acknowledge the cooperation of Miss E. B. Bryant who has responded generously to my requests for data on various species of uncertain status and has placed in my hands for study the important collections of *Phrurolithus* and *Phrurotimpus* in the Museum of Comparative Zoölogy.

Phrurolithus similis Banks

Figures 1, 2 and 3

Phrurolithus similis BANKS, 1895, Journ. New York Ent. Soc., III, p. 81.

Phrurolithus delicatulus GERTSCH, 1935, American Museum Novitates, No. 805, p. 3, Figs. 5 and 7 (not female, Fig. 6).

The identity of *Phrurolithus similis* Banks has long been obscure. Miss E. B. Bryant of the Museum of Comparative Zoölogy has generously sent me cotypes of the species for comparison with the numerous species in the collection of the American Museum. In the past *similis* has been identified as a relatively large spider in which the ventral branch of the tibial apophysis is very short. A study of the cotypes of *similis*, all of which represent the same species, shows that it is quite distinct from that species and apparently identical with the male holotype of *Phrurolithus delicatulus* Gertsch which name must become a synonym. The species formerly identified as *similis* by Chamberlin and Gertsch is described as a new species in this paper, *P. redemptus*. I find also that the female allotype of *delicatulus* represents a species distinct from *similis*, which was associated improperly with the holotype of *delicatulus*. This species, now known from Tennessee, Alabama, Florida and Virginia, is described below as *singulus*, new species.

Illustrations of the palpus (Figs. 1 and 2) and the epigynum (Fig. 3) of *Phrurolithus similis* Banks are included for comparison with the allied species.

Phrurolithus singulus, new species

Figures 4, 5 and 6

MALE.—Total length, 1.90 mm.

	Length	Width
CARAPACE	0.90 mm.	0.70 mm.
FRONT	0.22	0.30
STERNUM	0.52	0.48
LABIUM	0.12	0.15
MAXILLA	0.24	0.20
ABDOMEN	1.00	0.65

Coloration in close agreement with *similis*, *pugnatus* and related species. Carapace dark brown to black. Abdomen sclerotized above, dark brown, marked with two paler spots at the base and with a transverse pale stripe just in front of the middle. Venter pale. Legs yellow, lined with black as in the above species.

First row of eyes procurved as seen from in front, the median separated by a radius, subcontinguous with the larger lateral eyes. Clypeus relatively high, equal in height to twice the diameter of an anterior median eye. Second row of eyes very gently procurved, the oval median separated by about one-fourth their long diameter, as far from the slightly smaller lateral eyes. Median ocular quadrangle slightly longer than broad (22/20), as wide in front as behind, the posterior median eyes slightly larger.

First femur with two prolateral spines near the

distal end. First tibia with five pairs of ventral spines, none distal. First metatarsus with 2–2–2–1 ventral spines, none distal. First patella and tibia, 0.85 mm. long; fourth patella and tibia, 0.80 mm. long.

Palpus as illustrated in Figs. 4 and 5.

FEMALE.—This sex of the present species was described as the allotype of *Phrurolithus delicatulus* Gertsch (1935, American Museum Novitates, No. 805, p. 3, Fig. 6). The species is easily differentiated by the epigynum (Fig. 6). The atriobursal orifices lie close together in front of the seminal receptacles and open externally in a small circular atrium. In most of the other species of the genus the atrium is relatively shallow, often obsolete, and the atriobursal orifices are evident as two more or less widely separated openings.

TYPE LOCALITY.—Female holotype and paratype from Newman's Lake, Gainesville, Florida, June 13, 1935 (W. J. Gertsch). Male allotype from Great Falls, Potomac, Virginia, April 13, 1909 (J. H. Emerton), in the Museum of Comparative Zoölogy. Female paratype from Mt. Roszell Road, one mile northwest of Elk River, Limestone County, Alabama, April 16, 1940 (A. F. Archer). Female paratypes from Montvale Springs, Tennessee, March 18, 1929 (W. M. Barrows) (= allotype and female paratypes of *Phrurolithus delicatulus* Gertsch). Male paratype from Rowe's Mt., Madison County, Alabama, July 29, 1940 (A. F. Archer). Numerous males and females, paratypes, from Gainesville, Florida, February 3, 1927 (W. M. Barrows).

The palpus of *singulus* is similar in general appearance to that of *similis*. The dorsal apophysis is relatively longer and more curved. The embolus is thin, slightly curved, whereas in *similis* it is quite broad and terminates in a curved hook.

Phrurolithus redemptus, new species

Figures 15, 16 and 18

Phruronellus similis CHAMBERLIN AND GERTSCH, 1930, Proc. Biol. Soc. Washington, XLIII, Pl. II, Figs. 2 and 3 (not *similis* Banks).

FEMALE.—Total length, 2.50 mm.

	Length	Width
CARAPACE	1.15 mm.	0.96 mm.
FRONT	0.23	0.40
STERNUM	0.63	0.61
LABIUM	0.16	0.20
MAXILLA	0.30	0.20
ABDOMEN	1.35	0.90

Integument of the carapace dark yellowish brown, with faint black radiating streaks and an indistinct narrow marginal black seam. Sternum, mouth parts and coxae yellowish brown, lightly infuscated. Legs light yellowish brown, the femora and patellae infuscated, especially on the prolateral surface to form longitudinal bands. Abdomen mostly black above, slightly sclerotized, marked with a broad white transverse band near the middle, two pale spots near the base and three or four narrow pale chevrons in the caudal half. Venter of the abdomen white, dusky in front of the spinnerets.

Structure essentially as in *similis*. Clypeus equal in height to somewhat more than the diameter of an anterior lateral eye (12/9). First row of eyes procurved, the median separated by scarcely their radius, subcontiguous with the somewhat larger lateral eyes. Second row of eyes essentially straight, the nearly circular median separated by their radius, as far from the equal lateral eyes. Median ocular quadrangle slightly longer than broad (24/21), as wide in front as behind, the eyes subequal.

First femur with two prolateral spines. First tibia with six ventral pairs. First metatarsus with 2–2–2–1 ventral spines. First leg: femur, 1.00 mm., patella, 0.40 mm., tibia, 1.05 mm., metatarsus, 0.95 mm., and tarsus, 0.52 mm. long. Fourth leg: femur, 1.08 mm., patella, 0.41 mm., tibia, 1.02 mm., metatarsus, 1.12 mm., and tarsus, 0.73 mm. long.

Epigynum as illustrated in Fig. 18.

MALE.—Total length, 2.15 mm.

	Length	Width
CARAPACE	1.02 mm.	0.86 mm.
FRONT	0.22	0.33
STERNUM	0.55	0.55
LABIUM	0.13	0.16
MAXILLA	0.27	0.20
ABDOMEN	1.20	0.80

Coloration in complete agreement with the female. Abdomen completely covered with a shining dark brown scutum which is marked by a single broad pale stripe near the middle.

Structure in close agreement with the female. Clypeus proportionately higher, equal in height to one and one-half times the diameter of an anterior lateral eye. Eyes as in the female.

Legs spined as in the female. First leg: femur, 0.73 mm., patella, 0.30 mm., tibia, 0.74 mm., metatarsus, 0.66 mm., and tarsus, 0.40 mm. long. Fourth leg: femur, 0.81 mm., patella, 0.30 mm., tibia, 0.70 mm., metatarsus, 0.80 mm., and tarsus, 0.46 mm. long.

Palpus as illustrated in Figs. 15 and 16.

TYPE LOCALITY.—Male holotype and female allotype and female paratype from Montvale Springs, Tennessee, March 18, 1929 (W. M. Barrows). Male paratype from near Chicago, Illinois. Male and female paratypes from Washington, D. C.,

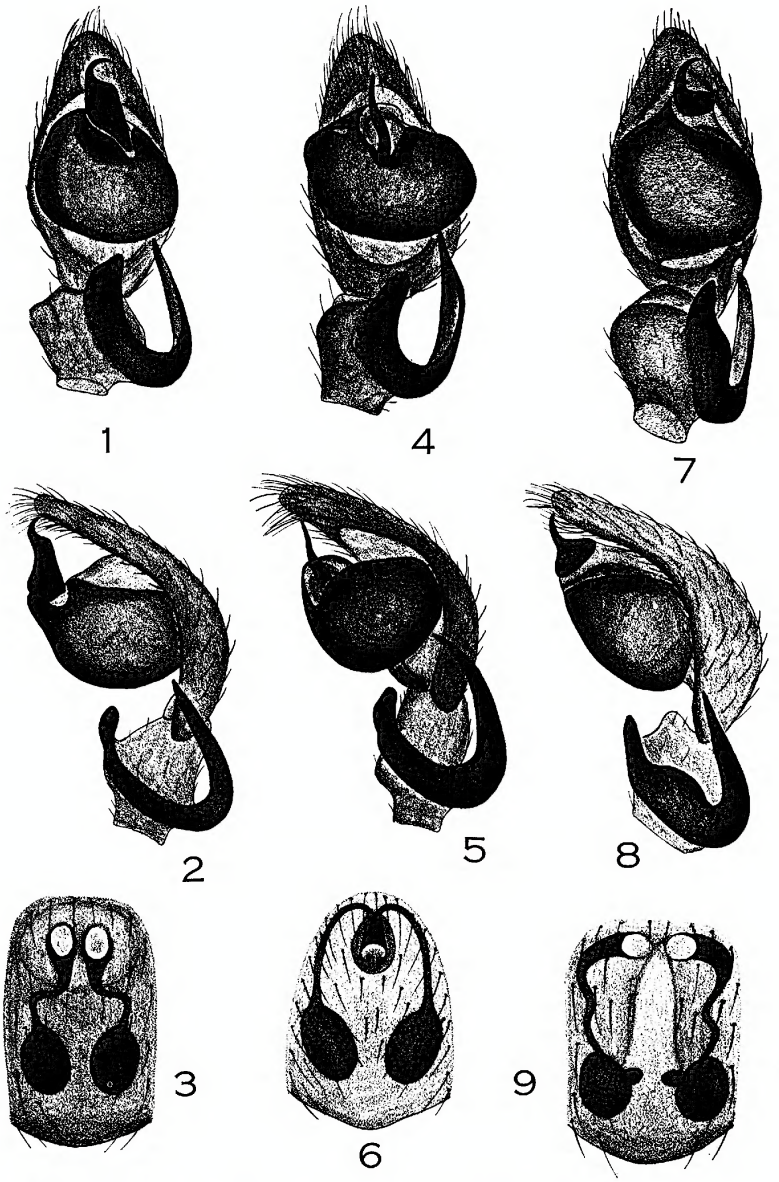

Fig. 1. *Phrurolithus similis* Banks, left palpus, ventral view.
Fig. 2. Idem, left palpus, retrolateral view.
Fig. 3. Idem, epigynum of female.
Fig. 4. *Phrurolithus singulus*, new species, left palpus, ventral view.
Fig. 5. Idem, left palpus, retrolateral view.
Fig. 6. Idem, epigynum of female.
Fig. 7. *Phrurolithus divinulus*, new species, left palpus, ventral view.
Fig. 8. Idem, left palpus, retrolateral view.
Fig. 9. Idem, epigynum of female.

1890 (George Marx), in the Museum of Comparative Zoölogy. Two female paratypes from Falls Church, Virginia (N. Banks), in the Museum of Comparative Zoölogy. Male and two female paratypes from Hatchet Creek, Coosa County, Alabama, June, 1940 (A. F. Archer).

This is a larger species than *Phrurolithus similis* Banks with which it has been confused. The first tibiae are armed below with six pairs of movable spines, whereas in *similis* only five pairs are present. The openings of the epigynum are situated immediately above the front edge of the spermathecae. In *similis* these openings are farther forward. The lower branch of the tibial apophysis of the male palpus is very short and is bifid at the apex as illustrated in the figure.

Phrurolithus banksi, new species

Figures 13 and 14

MALE.—Total length, 1.60 mm.

	Length	Width
CARAPACE	0.83 mm.	0.66 mm.
FRONT	0.20	0.30
STERNUM	0.48	0.45
LABIUM	0.10	0.13
MAXILLA	0.20	0.20
ABDOMEN	0.80	0.66

Carapace light yellowish brown, the eyes narrowly ringed with black. Underside and appendages pale yellowish brown, without contrasting markings. Abdomen pale brown, the dorsum covered almost completely by a shining yellowish scutum which shows faint indications of a pair of paler spots at the middle. Venter white.

Structure in close agreement with *fratrellus* Gertsch. Clypeus equal in height to a diameter of an anterior median eye. First row of eyes procurved as seen from in front, the dark median eyes separated by the radius, contiguous with the clearly larger lateral eyes. Second row of eyes essentially straight, the nearly round median eyes scarcely separated, at most by one-fifth their diameter, twice as far from the slightly smaller lateral eyes. Median ocular quadrangle as broad as long, slightly narrowed in front (21/20), the posterior eyes larger.

First femur with two prolateral spines near the distal end. First tibia with five pairs of ventral spines, none distal. First metatarsus with four pairs of ventral spines, lacking distals. First leg: femur, 0.69 mm., patella, 0.30 mm., tibia, 0.60 mm., metatarsus, 0.60 mm., and tarsus, 0.37 mm. long. Tibia and patella IV, 0.91 mm.

Palpus as illustrated in Figs. 13 and 14. Knob on femur of left palpus at middle of ventral surface of the segment, the enlargement toward the base. Right palpus regenerated, abnormal.

TYPE LOCALITY.—Male holotype from Falls Church, Virginia (N. Banks collection), in the Museum of Comparative Zoölogy.

This tiny spider agrees closely in structure and appearance with *Phrurolithus fratrellus* Gertsch. The palpus differs chiefly in having the embolus straight, whereas in *fratrellus* it is strongly curved.

Phrurolithus duncani Chamberlin

Figure 40

Phrurolithus duncani CHAMBERLIN, 1925, Proc. Biol. Soc. Washington, XXXVIII, p. 7.

RECORD.—Two females from Claremont, California (N. Banks collection), in the Museum of Comparative Zoölogy probably represent this species which was described from the male. The epigynum is illustrated in Fig. 40.

Phrurolithus pugnatus Emerton

Figures 22, 23 and 24

Phrurolithus pugnatus EMERTON, 1889, Trans. Connecticut Acad. Arts and Sci., VIII, p. 188, Pl. VI, fig. 6.

RECORDS.—Male and females from Ramsey, New Jersey, December 1, 1912 (J. H. Emerton). Idem, males and females, May, June and September (W. J. Gertsch). Male from Lexington, Massachusetts, March 26, 1910 (J. H. Emerton). Males and females from Swampscott, Massachusetts, May 8, 1873. Female from Ipswich, Massachusetts, October 30, 1925 (E. B. Bryant). Two females from Sharon, Massachusetts, October 30, 1925 (J. H. Emerton). Idem, two males, October 16 (J. H. Emerton). Male and female from Monponsett, Massachusetts, June 12, 1912 (J. H. Emerton). Female from Fitzwilliam, New Hampshire, May 24, 1907 (E. B. Bryant).

Illustrations of the palpus and epigynum of this species are included for comparison with *divestus*, *sculleni*, and related species.

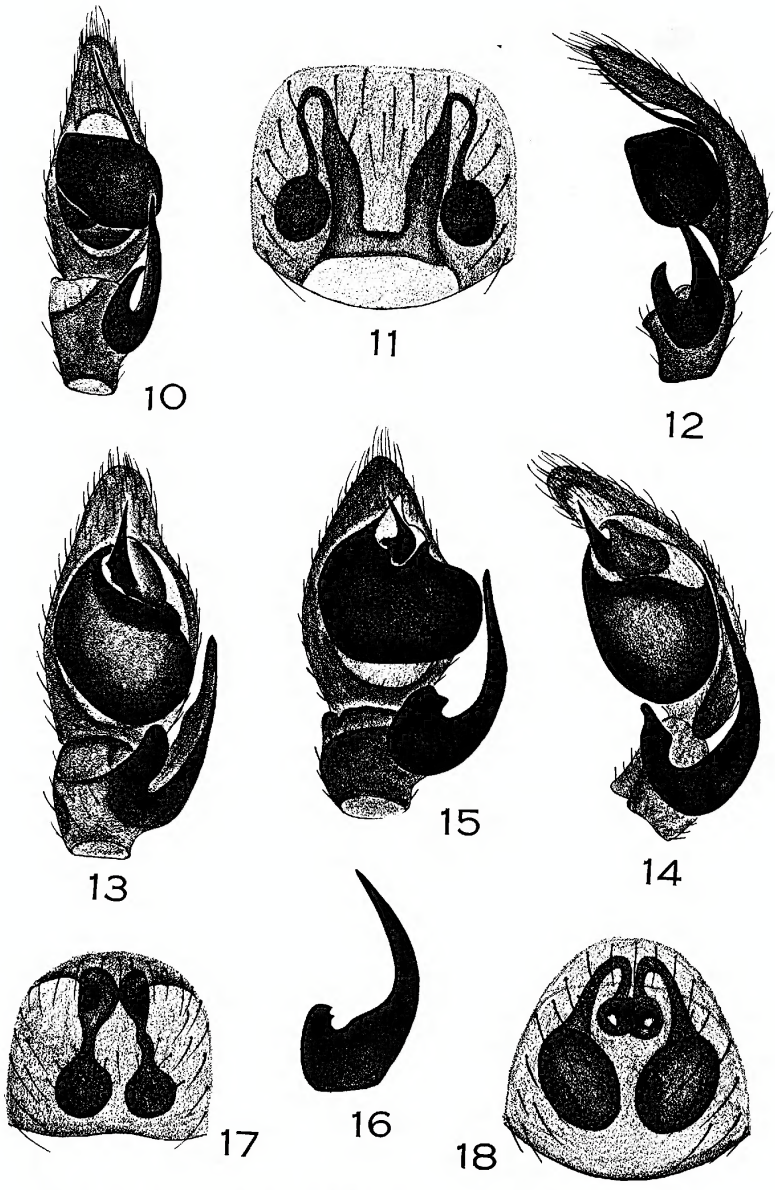

Fig. 10. *Phrurolithus schwarzi*, new species, left palpus, ventral view.
Fig. 11. Idem, epigynum of female.
Fig. 12. Idem, left palpus, retrolateral view.
Fig. 13. *Phrurolithus banksi*, new species, left palpus, ventral view.
Fig. 14. Idem, left palpus, retrolateral view.
Fig. 15. *Phrurolithus redemptus*, new species, left palpus, ventral view.
Fig. 16. Idem, tibial apophysis of left palpus, retrolateral view.
Fig. 17. *Phrurolithus apacheus*, new species, epigynum of female.
Fig. 18. *Phrurolithus redemptus*, new species, epigynum of female.

Phrurolithus divestus, new species

Figures 19, 20 and 21

FEMALE.—Total length, 2.20 mm.

	Length	Width
CARAPACE	0.94 mm.	0.77 mm.
FRONT	0.15	0.33
STERNUM	0.55	0.55
LABIUM	0.11	0.16
MAXILLA	0.25	0.17
ABDOMEN	1.20	0.95

Integument of the carapace dark yellowish brown, with the usual black radiating lines and markings. Sternum, mouth parts and coxae paler brown, somewhat infuscated. Legs light yellowish brown, the femora and patellae with black bands which are distinct on the prolateral surface but reduced to spots on the retrolateral aspect. Dorsum of abdomen black, with a faint purplish cast, without pale bands or spots, the venter paler, dusky in the middle.

Structure in close agreement with *Phrurolithus pugnatus* Emerton with which this species has been confused. Clypeus equal in height to the diameter of an anterior median eye. First row of eyes procurved, the median separated by their radius, subcontiguous with the larger lateral eyes. Second row of eyes essentially straight, the nearly circular median separated by one-third their diameter, a little farther from the subequal lateral eyes. Median ocular quadrangle as broad as long, slightly narrowed in front (17/20), the eyes subequal in size.

First femur with two spines on the prolateral aspect near the distal end. First tibia with five pairs of ventral spines. First metatarsus with 2–2–2–1 ventral spines. First leg: femur, 0.73 mm., patella, 0.27 mm., tibia, 0.66 mm., metatarsus, 0.63 mm., and tarsus, 0.35 mm. long. Tibia and patella IV, 1.00 mm. long.

Epigynum as illustrated in Fig. 21.

MALE.—Total length, 2.06 mm

	Length	Width
CARAPACE	0.93 mm.	0.77 mm.
FRONT	0.20	0.31
STERNUM	0.54	0.53
LABIUM	0.12	0.16
MAXILLA	0.26	0.18
ABDOMEN	1.13	0.72

Coloration in close agreement with the female. Carapace brown, marked with narrow black radiating lines. Legs pale yellowish brown, the prolateral surface of the femora and patellae lightly infuscated to form indistinct longitudinal bands. Dorsum of the abdomen covered by a shining brown scutum which is unmarked, except for an indistinct median streak, by light transverse bands or chevrons.

Carapace longer than broad, evenly convex, the sutures obsolete. Clypeus relatively high, equal in height to more than one diameter of an anterior lateral eye (11/9). Eye relations as in the female.

Legs spined as in the female. First leg: femur, 0.72 mm., patella, 0.31 mm., tibia, 0.68 mm., metatarsus, 0.63 mm., and tarsus, 0.33 mm. long. Fourth leg: femur, 0.77 mm., patella, 0.33 mm., tibia, 0.65 mm., metatarsus, 0.78 mm., and tarsus, 0.44 mm. long.

Palpus as illustrated in Figs. 19 and 20.

TYPE LOCALITY.—Male holotype from Sunderland, Massachusetts, April 16, 1937 (W. M. Kulash). Female allotype from Bass Harbor, Maine, August 21, 1901 (Britcher). The following paratypes are in the Museum of Comparative Zoölogy: One male and several female paratypes from Clarendon Hills, Massachusetts, November 3–10, 1904 (E. B. Bryant). One male paratype from North Woodstock, New Hampshire, September, 1911 (W. H. Fox). Male paratype from Mt. Hunger, Long Island, Maine, May 18, 1904 (E. B. Bryant). Male and female paratypes from Ithaca, New York (N. Banks). Male and female paratypes from Lexington, Massachusetts, March 26, 1910 (J. H. Emerton).

This species is somewhat smaller than *Phrurolithus pugnatus* Emerton but agrees with it closely in structure. The abdomen is not marked above by white spots or stripes. The palpi of the males are very similar but in *divestus* the embolus is proportionately shorter and nearly straight, whereas in *pugnatus* it is curved. The openings of the female epigynum are closer together as shown in the figure.

Phrurolithus divinulus, new species

Figures 7, 8 and 9

FEMALE.—Total length, 1.55 mm.

	Length	Width
CARAPACE	0.77 mm.	0.63 mm.
FRONT	0.14	0.26
STERNUM	0.50	0.48
LABIUM	0.09	0.13
MAXILLA	0.20	0.16
ABDOMEN	0.87	0.60

Carapace pale yellowish brown, dusky, the eyes ringed with black. Appendages pale yellow. Abdomen pale yellow, uniformly dusky above.

Structure in close agreement with *divestus*. Clypeus equal in height to the short diameter of the lateral eye. First row procurved as seen from in front, the median separated by their radius, contiguous with the larger lateral eyes. Second row of eyes very gently recurved, essentially straight, the broadly oval median set

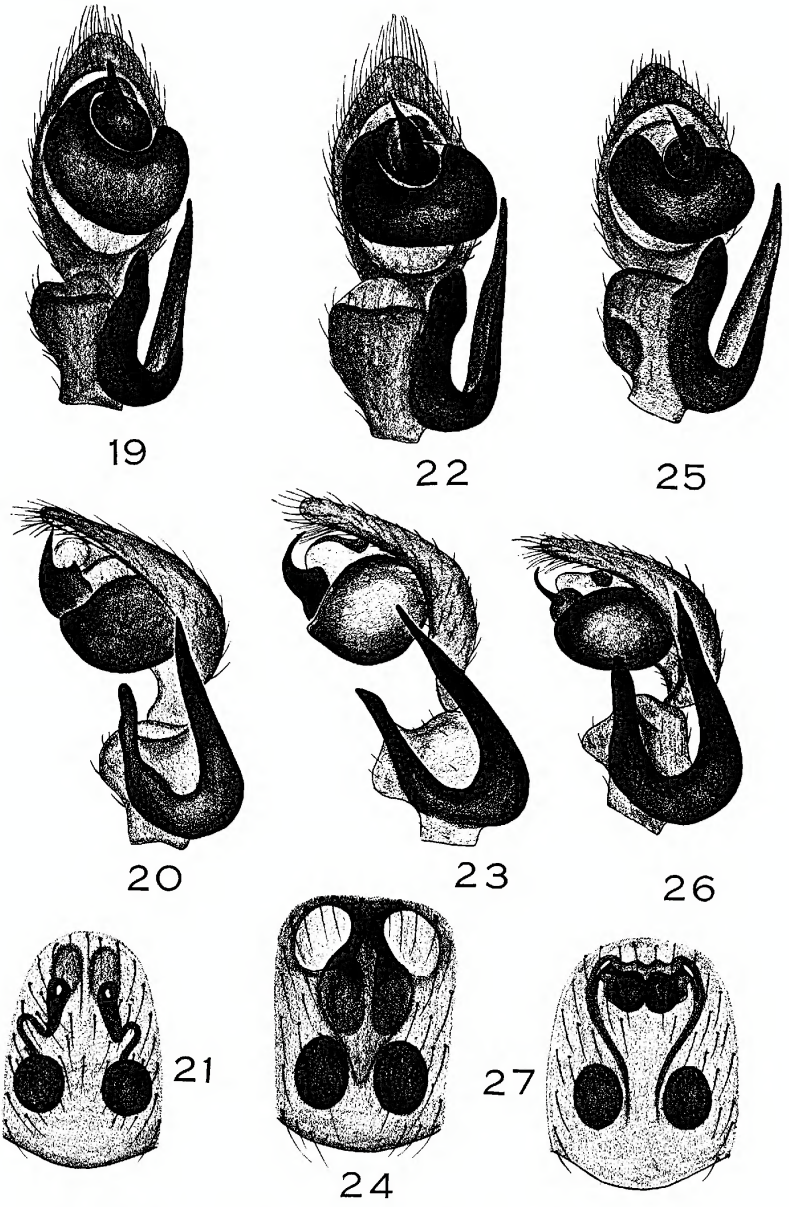

Fig. 19. *Phrurolithus divestus*, new species, left palpus, ventral view.
Fig. 20. Idem, left palpus, retrolateral view.
Fig. 21. Idem, epigynum of female.
Fig. 22. *Phrurolithus pugnatus* Emerton, left palpus, ventral view.
Fig. 23. Idem, left palpus, retrolateral view.
Fig. 24. Idem, epigynum of female.
Fig. 25. *Phrurolithus scullení*, new species, left palpus, ventral view.
Fig. 26. Idem, left palpus, retrolateral view.
Fig. 27. Idem, epigynum of female.

slightly obliquely, subcontiguous, separated by about one-sixth the diameter, twice as far from the slightly smaller lateral eyes. Median ocular quadrangle slightly broader than long (16/15), narrowed in front (16/14), the posterior eyes larger.

Spines as in *divestus*. First leg: femur, 0.64 mm., patella, 0.26 mm., tibia, 0.56 mm., metatarsus, 0.54 mm., and tarsus, 0.33 mm. long.

Epigynum as shown in Fig. 9.

MALE.—Total length, 1.90 mm.

	Length	Width
CARAPACE	0.87 mm.	0.70 mm.
FRONT	0.20	0.28
STERNUM	0.53	0.49
LABIUM	0.11	0.13
MAXILLA	0.24	0.18
ABDOMEN	1.03	0.60

Whole spider much darker than the female which is evidently not fully colored. Carapace dark brown. Underside and appendages pale yellowish brown. Abdomen dark brown above and on the sides, covered completely with a shining brown scutum, the venter white.

Structure essentially as in *divestus*. Clypeus equal in height to a diameter of an anterior lateral eye. First row of eyes procurved, the median separated by their radius, contiguous with the larger lateral eyes. Second row of eyes straight, the median separated by one-fourth the diameter, twice as far from the subequal lateral eyes. Median ocular quadrangle longer than broad (20/18), narrowed in front (18/16), the posterior eyes larger.

Leg spines as in *divestus*. Palpus as illustrated in Figs. 7 and 8

TYPE LOCALITY.—Female holotype and male allotype from St. Thomas, Ontario (Lorne E. James). Two male and two female paratypes from Ithaca, New York (N. Banks), in the Museum of Comparative Zoölogy.

The female of this species is most easily separated from *divestus* by the details of the epigynum which is figured. The male palpus is similar to those of *similis* Banks and *minnetonka* Chamberlin and Gertsch and agrees in having the dorsal spur of the tibia relatively short. In *divinulus* the embolus is very much shorter and weakly curved.

Phrurolithus sculleni, new species

Figures 25, 26 and 27

FEMALE.—Total length, 2.05 mm.

	Length	Width
CARAPACE	0.95 mm.	0.83 mm.
FRONT	0.15	0.35
STERNUM	0.60	0.55
LABIUM	0.13	0.15
MAXILLA	0.24	0.20
ABDOMEN	1.20	0.80

Carapace dark yellowish brown, marked with the usual black radiating streaks and black spots. Sternum speckled with black on a yellowish ground. Legs reddish brown, the anterior femora with prolateral and retrolateral black stripes. Abdomen black or nearly so, marked above near the middle with a broken transverse white band which forms two white spots. Venter dark, paler at the base.

Structure in close agreement with *Phrurolithus pugnatus* Emerton. Clypeus equal in height to the diameter of an anterior lateral eye. First eye row recurved, the median separated by their radius, subcontiguous with the larger lateral eyes. Second row of eyes gently procurved, the median separated by one-third their diameter, a radius from the subequal lateral eyes. Median ocular quadrangle as long as broad, narrowed in front (21/17), the eyes subequal

Spines on legs as in *divestus*. First leg: femur, 0.83 mm., patella, 0.32 mm., tibia, 0.80 mm., metatarsus, 0.72 mm., and tarsus, 0.43 mm. long. Fourth leg: femur, 0.86 mm., patella, 0.36 mm., tibia, 0.75 mm., metatarsus, 0.80 mm., and tarsus, 0.50 mm. long.

Epigynum as illustrated in Fig. 27.

MALE.—Similar in size and structure to the female. Palpus as illustrated in Figs. 25 and 26.

TYPE LOCALITY.—Female holotype and two female paratypes from Goble, Oregon, April 22, 1938. Male allotype and two female paratypes from Olympia, Washington (N. Banks collection), in the Museum of Comparative Zoölogy. Male paratype from same locality in the American Museum.

This species is similar in size and general appearance to *pugnatus* Emerton. It is easily differentiated by the epigynum which is shown in Fig. 27. The atriobursal orifices are narrow, longitudinal slits near the front end of the sclerotized area and are separated by three times their length. In *pugnatus* the orifices are essentially transverse in position and are very much larger. The male palpus is distinctive as shown in the figure.

Phrurolithus connectus, new species

Figure 30

FEMALE.—Total length, 2.45 mm.

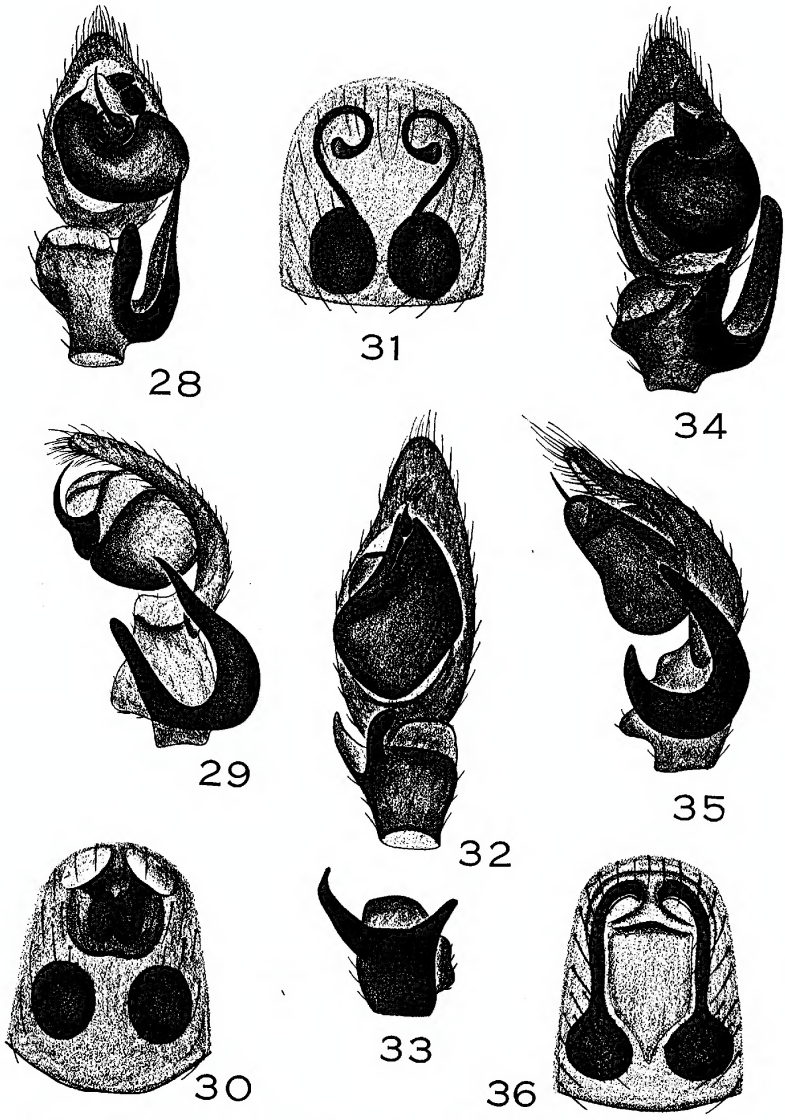

Fig. 28. *Phrurolithus deletus*, new species, left palpus, ventral view.
Fig. 29. Idem, left palpus, retrolateral view.
Fig. 30. *Phrurolithus connectus*, new species, epigynum of female.
Fig. 31. *Phrurolithus concisus*, new species, epigynum of female.
Fig. 32. *Phrurolithus absurdus*, new species, right palpus, ventral view.
Fig. 33. Idem, tibia of right palpus, retrolateral view.
Fig. 34. *Phrurolithus brittoni*, new species, left palpus, ventral view.
Fig. 35. Idem, left palpus, retrolateral view.
Fig. 36. Idem, epigynum of female.

	Length	Width
Carapace	0.95 mm.	0.78 mm.
Front	0.17	0.35
Sternum	0.60	0.56
Labium	0.13	0.16
Maxilla	0.25	0.18
Abdomen	1.55	1.00

Coloration in close agreement with *sculleni*.

Structure similar to *sculleni*. Clypeus equal in height to the diameter of an anterior median eye. Second row of eyes very gently procurved, essentially straight, the median separated by the radius, two-thirds the diameter from the subequal lateral eyes. Median ocular quadrangle slightly longer than broad (21/20), as wide in front as behind, the eyes subequal in size.

Leg spines as in *divestus* and *sculleni*. First leg: femur, 0.74 mm., patella, 0.33 mm., tibia, 0.73 mm., metatarsus, 0.65 mm., and tarsus, 0.38 mm. long.

Epigynum as illustrated in Fig. 30.

Type Locality.—Female holotype from Ward, Colorado, 9000 feet, July 18, 1908 (F. E. Lutz).

This species may be distinguished from *sculleni* by reference to the eyes of the posterior row which are more widely separated and by the epigynum. The atriobursal orifices are situated near the front end of the epigynum and are separated by the width of the orifice. The receptacula seminis are proportionately larger and nearer the orifices and are separated by less than the short diameter.

Phrurolithus deletus, new species

Figures 28 and 29

Male.—Total length, 1.90 mm.

	Length	Width
Carapace	0.90 mm.	0.75 mm.
Front	0.20	0.30
Sternum	0.51	0.51
Labium	0.12	0.14
Maxilla	0.24	0.21
Abdomen	1.03	0.70

Coloration in complete agreement with *divestus*.

Structure in very close agreement with *divestus* and *pugnatus*. Clypeus equal in height to one and one-third times the diameter of an anterior median eye. First row of eyes procurved, the median separated by their radius, contiguous with the larger lateral eyes. Second row of eyes straight, the suboval median eyes set slightly obliquely and separated by one-third their long diameter, half their diameter from the smaller lateral eyes. Median ocular quadrangle as broad as long, slightly narrowed in front (19/20), the posterior eyes larger.

Leg spines as in *divestus*. First leg: femur, 0.75 mm., patella, 0.30 mm., tibia, 0.70 mm., metatarsus, 0.66 mm., and tarsus, 0.35 mm. long.

Palpus as illustrated in Figs. 28 and 29.

Type Locality.—Male holotype from Onondaga County, New York, October 9, 1900 (Britcher).

This is a somewhat smaller species than either *divestus* or *pugnatus*. It is distinct from the former in having the embolus strongly curved. From *pugnatus* it may be distinguished by the shorter dorsal prong of the tibial apophysis and in that this process is much closer to the tibia as seen from above.

Phrurolithus catalinius, new species

Figures 37, 38 and 39

Female.—Total length, 2.70 mm.

	Length	Width
Carapace	0.92 mm.	0.78 mm.
Front	0.15	0.36
Sternum	0.60	0.54
Labium	0.13	0.15
Maxilla	0.25	0.15
Abdomen	1.85	1.00

Integument of the carapace dusky golden brown, relatively smooth and very sparsely clothed with a few black hairs, the ocular region with several longer hairs. Carapace with radiating black lines. Sternum, mouth parts and coxae dull yellowish brown, sparsely clothed with soft black hairs. Legs light yellowish brown, unmarked, clothed evenly with pale hairs. Abdomen mostly dusky above, with indistinct pale chevron marks behind, the venter pale.

Carapace longer than broad, evenly convex, the median and cephalic sutures obsolete. Clypeus equal in height to the diameter of an anterior lateral eye. First row of eyes slightly narrower than the second, procurved, the median separated by their radius, subcontiguous with the slightly larger lateral eyes. Second row of eyes essentially straight, the oval median eyes set obliquely, separated by one-third the long diameter, a radius from the subequal lateral eyes. Median ocular quadrangle as broad as long, slightly narrowed in front (21/20).

First femur with two prolateral spines. First tibia with five pairs of long ventral spines, without distal spines. First metatarsus with 2–2–2–1 ventral spines, lacking distal spines. First leg: femur, 0.80 mm., patella, 0.33 mm., tibia, 0.77 mm., metatarsus, 0.73 mm., and tarsus, 0.40 mm. long. Fourth leg: femur, 0.90 mm., patella, 0.36 mm., tibia, 0.77 mm., metatarsus, 0.83 mm., and tarsus, 0.55 mm. long.

Epigynum as illustrated in Fig. 38.

Male.—Total length, 2.25 mm.

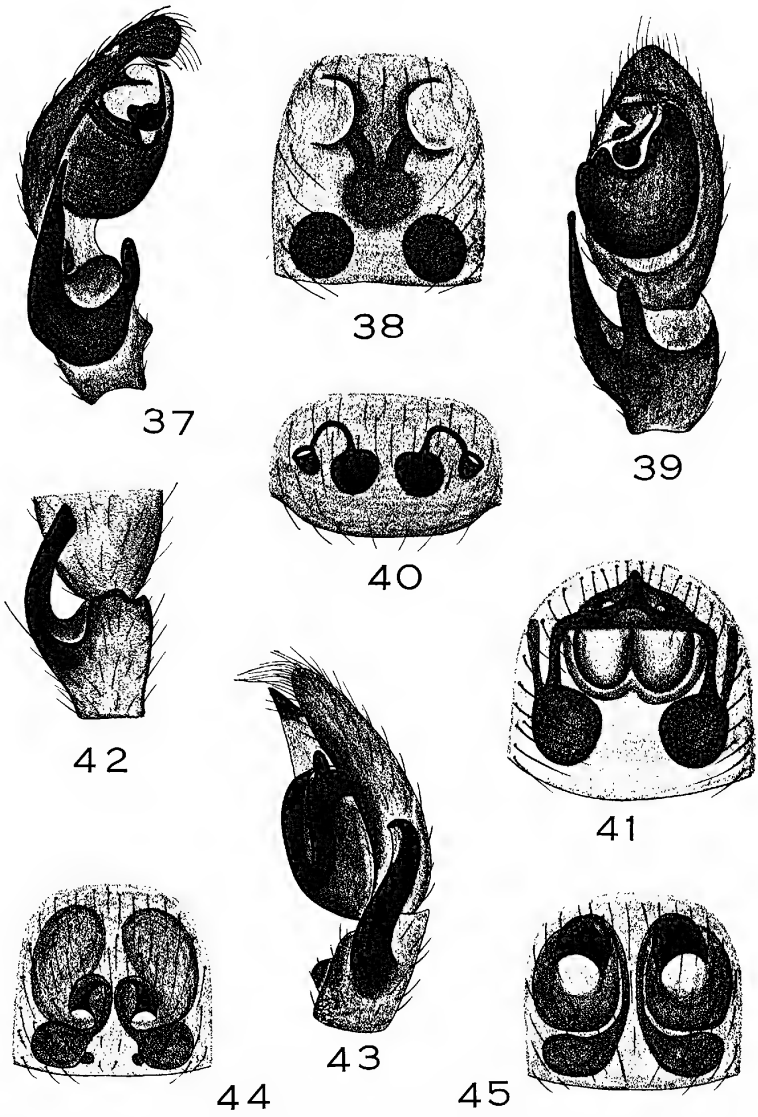

Fig. 37. *Phrurolithus catalinius*, new species, right palpus, retrolateral view.
Fig. 38. Idem, epigynum of female.
Fig. 39. Idem, right palpus, ventral view.
Fig. 40. *Phrurolithus duncani* Chamberlin, epigynum of female.
Fig. 41. *Phrurolithus aemulatus*, new species, epigynum of female.
Fig. 42. *Phrurotimpus dulcineus*, new species, tibia of left palpus, dorsal view.
Fig. 43. Idem, left palpus, retrolateral view.
Fig. 44. Idem, epigynum of female.
Fig. 45. *Phrurotimpus abditus*, new species, epigynum of female.

	Length	Width
Carapace	1.05 mm.	0.87 mm.
Front	0.20	0.40
Sternum	0.64	0.58
Labium	0.13	0.17
Maxilla	0.26	0.20
Abdomen	1.25	0.80

Coloration in close agreement with the female. Abdomen proportionately smaller, with a lightly sclerotized scutum covering the whole dorsum. Eyes essentially as in the female but the median eyes of the posterior row are somewhat more widely separated, by the radius.

First femur with two or three prolateral spines. First tibia with six pairs of ventral spines, the basal pair weak, without distal spines. First metatarsus with 2–2–2–1 ventral spines, lacking distals. First leg: femur, 0.87 mm., patella, 0.35 mm., tibia, 0.80 mm., metatarsus, 0.73 mm., and tarsus, 0.45 mm. long. Fourth leg: femur, 0.97 mm., patella, 0.36 mm., tibia, 0.78 mm., metatarsus, 0.86 mm., and tarsus, 0.55 mm. long.

Male palpus as illustrated in Figs. 37 and 39. Femoral spur near the middle of the joint on the ventral surface.

Type Locality.—Male holotype, female allotype and paratypes from Bear Wallow, Mt. Lemmon, Santa Catalina Mountains, Arizona, July 12–15, 1940 (W. J. Gertsch). Male and female paratypes from near the Ranger Station and at Summerhaven, both on Mt. Lemmon, July 12–15, 1940 (W. J. Gertsch).

This pretty spider may be distinguished from the other common species from the Santa Catalina Mountains by its paler coloration. The embolus of the male palpus is relatively short, whereas in *schwarzi* it is a fine, long tube. The openings of the epigynum of the female are situated beyond the middle of the atrium. In *schwarzi* they are near the caudal margin.

Phrurolithus schwarzi, new species

Figures 10, 11 and 12

Female.—Total length, 2.70 mm.

	Length	Width
Carapace	1.07 mm.	0.92 mm.
Front	0.20	0.40
Sternum	0.70	0.58
Labium	0.13	0.18
Maxilla	0.27	0.20
Abdomen	1.65	1.20

Integument of the carapace light yellowish brown but the pale color is masked almost completely with small black spots and irregular maculations. Underside of the carapace and the legs pale yellowish brown, lightly infuscated, the femora with prolateral black spines. Abdomen all black above, the venter with or without a paler median stripe.

Structure in close agreement with *Phrurolithus camawhitae* Gertsch. Clypeus equal in height to a diameter of an anterior lateral eye. First row of eyes procurved, the median separated by the radius, subcontiguous with the lateral eyes. Second row of eyes straight, the circular median separated by their radius, slightly farther from the subequal lateral eyes. Median ocular quadrangle as broad as long, as wide in front as behind.

First femur with two prolateral spines. First tibia with six pairs of ventral spines. First metatarsus with 2–2–2–1 ventral spines, without distal spines. First leg: femur, 0.90 mm., patella, 0.40 mm., tibia, 0.90 mm., metatarsus, 0.80 mm., and tarsus, 0.45 mm. long. Fourth leg: femur, 1.02 mm., patella, 0.42 mm., tibia, 0.84 mm., metatarsus, 0.90 mm., and tarsus, 0.54 mm. long.

Epigynum as illustrated in Fig. 11.

Male.—Total length, 2.30 mm.

	Length	Width
Carapace	1.10 mm.	0.90 mm.
Front	0.20	0.40
Sternum	0.68	0.60
Labium	0.15	0.20
Maxilla	0.30	0.20
Abdomen	1.20	0.76

Coloration as in the female. Abdomen covered above with a shining brown scutum. Structure essentially as in the female. Clypeus equal in height to the diameter of an anterior lateral eye. Eyes as in the female. Legs with strong ventral spines as in the female. First leg: femur, 0.90 mm., patella, 0.36 mm., tibia, 0.90 mm., metatarsus, 0.77 mm., and tarsus, 0.40 mm. long. Fourth leg: femur, 0.92 mm., patella, 0.36 mm., tibia, 0.80 mm., metatarsus, 0.90 mm., and tarsus, 0.53 mm. long.

Palpus as illustrated in Figs. 10 and 12.

Type Locality.—Male holotype, female allotype and male and female paratypes from Bear Wallow, Mt. Lemmon, Santa Catalina Mountains, Arizona, July 12–15, 1940 (W. J. Gertsch). Male paratypes from near the Ranger Station, Mt. Lemmon, July 12–15, 1940 (W. J. Gertsch). Male and female paratypes from Madera Canyon, Santa Rita Mountains, Arizona, July 16, 1940 (Gertsch and Hook).

This species is very closely related to *Phrurolithus camawhitae* Gertsch with which it agrees in color and general structure. The atriobursal orifices of the female are situated just behind the sper-

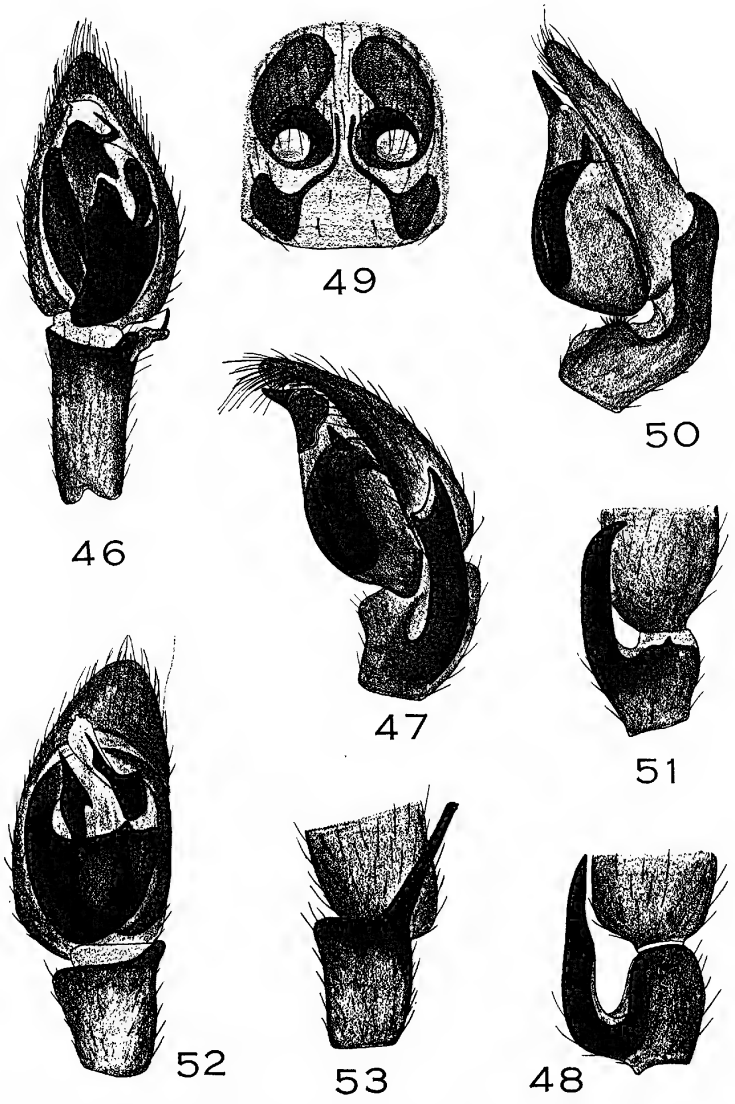

Fig. 46. *Neoanagraphis pearcei*, new species, left palpus, ventral view.
Fig. 47. *Phrurotimpus certus*, new species, left palpus, retrolateral view.
Fig. 48. Idem, tibia of left palpus, dorsal view.
Fig. 49. *Phrurotimpus illudens*, new species, epigynum of female.
Fig. 50. Idem, left palpus, retrolateral view.
Fig. 51. Idem, tibia of left palpus, dorsal view.
Fig. 52. *Laudetia dominicana*, new species, right palpus, ventral view.
Fig. 53. Idem, tibia of right palpus, dorsal view.

mathecae and lead into bursae which are proportionately much longer than in *camawhitae*. The embolus of the male palpus is essentially straight, whereas in *camawhitae* it is strongly curved.

Phrurolithus apacheus, new species

Figure 17

FEMALE.—Total length, 2.30 mm.

	Length	Width
CARAPACE	0.90 mm.	0.76 mm.
FRONT	0.16	0.35
STERNUM	0.55	0.50
LABIUM	0.12	0.16
MAXILLA	0.24	0.14
ABDOMEN	1.40	1.00

Integument very dark brown, with the usual black radiating lines and markings, the margins with an indistinct narrow black seam. Sternum, mouth parts and coxae dull yellowish brown infuscated, clothed sparsely with black hairs. Legs light brown, the femora and coxae marked with black side stripes, the tibiae less distinctly banded, the distal joints unmarked. Abdomen black, most of the dorsum covered with a shining sclerotized brownish scutum, the venter paler on the sides but dusky in the middle.

Structure in close agreement with *Phrurolithus formica* Banks. Clypeus equal in height to three-fourths the diameter of an anterior median eye. First row of eyes very slightly narrower than the second row, procurved, the median eyes separated by their radius, subcontiguous with the clearly larger lateral eyes. Second row of eyes essentially straight, the large oval median set obliquely and separated by about one-seventh the greatest diameter, subcontiguous, about twice as far from the clearly smaller lateral eyes. Median ocular quadrangle slightly longer than broad (17/16), narrowed in front in the same ratio, the anterior median eyes much smaller, in ratio 5:3.

First femur with two prolateral spines near the distal end. First tibia with five pairs of ventral spines, none distal. First metatarsus with 2–2–2–1 ventral spines, none distal. First leg: femur, 0.74 mm., patella, 0.30 mm., tibia, 0.64 mm., metatarsus, 0.60 mm., and tarsus, 0.37 mm. long. Fourth leg: femur, 0.75 mm., patella, 0.33 mm., tibia, 0.60 mm., metatarsus, 0.72 mm., and tarsus, 0.46 mm. long.

Epigynum as illustrated in Fig. 17.

TYPE LOCALITY.—Female holotype from nine miles east of Whiteriver, White Mountains, Arizona, July 9, 1940 (W. J. Gertsch).

This species is most closely related to *Phrurolithus formica* Banks with which it agrees in having the dorsum of the abdomen armed with a hard scutum in the female. It is much smaller in size (2.30 mm., as compared with 3.00 mm.) and has the posterior median eyes proportionately larger, clearly exceeding the anterior median eyes in size. The openings of the epigynum are near together at the front end of the atrium whereas in *formica* they are widely separated near the caudal end.

Phrurolithus brittoni, new species

Figures 34, 35 and 36

Phrurolithus formica EMERTON, 1911, Trans. Connecticut Acad. Arts and Sci., XVI, p. 403, Pl. VI, figs. 1a and 1c (not figs. 1 and 1b).

Phrurolithus britcheri GERTSCH, 1935, American Museum Novitates, No. 805, p. 4, Figs. 7 and 8 (not *britcheri* Petrunkevitch).

FEMALE.—Total length, 2.30 mm.

	Length	Width
CARAPACE	0.95 mm.	0.86 mm.
FRONT	0.38	0.38
STERNUM	0.58	0.57
LABIUM	0.12	0.17
MAXILLA	0.26	0.18
ABDOMEN	1.40	1.05

Coloration in close agreement with *Phrurolithus apacheus*, new species. Abdomen with a large oval scutum on the dorsum.

Structure essentially as in *formica* and *apacheus*. Clypeus equal in height to the diameter of an anterior median eye. First row of eyes slightly narrower than the second, procurved, the median eyes separated by their radius, subcontiguous with the clearly larger lateral eyes. Posterior row of eyes essentially straight, the nearly round median eyes scarcely separated, by about one-eighth their diameter, one-third their diameter from the smaller lateral eyes. Median ocular quadrangle slightly broader than long (25/24), narrowed in front (25/22), the anterior median eyes much smaller.

Spination of legs in complete agreement with *apacheus*. First leg: femur, 0.68 mm., patella, 0.29 mm., tibia, 0.60 mm., metatarsus, 0.56 mm., and tarsus, 0.40 mm. long.

Epigynum as illustrated in Fig. 36.

MALE.—Total length, 2.25 mm.

	Length	Width
CARAPACE	1.08 mm.	0.93 mm.
FRONT	0.30	0.40
STERNUM	0.60	0.60
LABIUM	0.16	0.22
MAXILLA	0.30	0.20
ABDOMEN	1.25	1.00

Coloration and structure in close agreement with the female. Scutum on abdomen shining black, more extensive than in the female, covering the whole dorsum and overlapping the sides.

Clypeus somewhat higher than in the female, equal to a full diameter of an anterior lateral eye. Eyes as in the female.

Palpus as illustrated in Figs. 34 and 35.

TYPE LOCALITY.—Male holotype and paratype from Apulia, Onondaga County, New York, October 16, 1900 (Britcher). Female allotype from Norwalk, Connecticut, May 27–30, 1933 (W. J. Gertsch). Three female paratypes from Woods Hole, Massachusetts, July 24 (Britcher). Three male paratypes from Bass Harbor, Maine, August 21, 1901 (Britcher). Male paratype from Jamesville, New York, September 19, 1900 (Britcher). The following paratypes are in the collection of the Museum of Comparative Zoölogy: Female paratype from Waltham, Massachusetts, April 28, 1909 (J. H. Emerton). Female paratypes from Tyngsboro, Massachusetts, April 7, taken from *Cremastogaster* nests (J. H. Emerton). Idem, female paratypes, taken from nests of *Cremastogaster lineolata* (F. Blanchard). Two female paratypes from Rumney, New Hampshire, April 23, 1927 (Darlington). Female paratype from Forest Hills, Boston, Massachusetts, May 3, 1910, from ants nests of *Cremastogaster lineolata* (W. M. Wheeler).

This pretty species is somewhat smaller than *formica* but is otherwise closely related in most structural details. The openings of the epigynum are moderately well separated and are situated near the frontal margin of the sclerotized epigynum area, whereas in *formica* they lie near the caudal end. The tibial apophysis of the male palpus is evenly curved, the lower branch far exceeding that apophysis of *formica* in length.

Phrurolithus brittoni lives in ants nests of species of *Cremastogaster* along with the common *Phrurolithus formica* Banks. Emerton recognized the differences between the two species but, probably because he apparently did not see a male, considered the species only as a form of *formica*.

Phrurolithus concisus, new species

Figure 31

FEMALE.—Total length, 2.00 mm.

	Length	Width
CARAPACE	0.78 mm.	0.62 mm.
FRONT	0.16	0.30
STERNUM	0.50	0.47
LABIUM	0.10	0.13
MAXILLA	0.20	0.15
ABDOMEN	1.27	0.90

Integument of the carapace pale yellowish brown, faintly marked with radiating darker lines, smooth and shining, sparsely clothed with inconspicuous hairs, chiefly on the pars cephalica. Sternum, mouth parts and legs concolorous or nearly so. Abdomen dull yellowish brown above, with a faint darker hastate marking at the base and a white spot at distal end above the spinnerets. Venter paler.

Structure typical, in close agreement with *fratrellus* Gertsch. Median groove and cephalic sutures of carapace obsolete. Clypeus low, equal in height to two-thirds the diameter of an anterior median eye. Eye rows about equal in width, the first procurved as seen from in front, the median separated by their radius, subcontiguous with the slightly larger lateral eyes. Second row of eyes straight, the oval median eyes separated by one-third their long diameter, set obliquely, a little nearer the subequal lateral eyes. Median ocular quadrangle slightly longer than broad (21/20), as wide in front as behind, the eyes subequal in size.

First femur with two prolateral spines. First tibia with five ventral pairs, no distals. First metatarsus with 2-2-2-1 ventral spines, lacking distal spines. First leg: femur, 0.63 mm., patella, 0.28 mm., tibia, 0.63 mm., metatarsus, 0.57 mm., and tarsus, 0.37 mm. long. Fourth leg: femur, 0.70 mm., patella, 0.30 mm., tibia, 0.60 mm., metatarsus, 0.65 mm., and tarsus, 0.47 mm. long.

Epigynum as illustrated in Fig. 31.

The epigynum of this small species resembles *Phrurolithus floridae* Chamberlin and Gertsch, a much larger, darker species, but the openings of the epigynum are more widely separated.

Phrurolithus aemulatus, new species

Figure 41

FEMALE.—Total length, 2.55 mm.

	Length	Width
CARAPACE	1.00 mm.	0.83 mm.
FRONT	0.16	0.40
STERNUM	0.63	0.55
LABIUM	0.12	0.16
MAXILLA	0.30	0.16
ABDOMEN	1.50	1.10

Integument of the carapace yellowish, dusky, with black radiating lines and markings, the margin with a narrow black seam. Ocular area with a few weak bristles, the clothing of the carapace otherwise consisting of a few incon-

spicuous dark hairs. Sternum, mouth parts and coxae dull yellowish brown, clothed sparsely with pale hairs. Legs dull yellowish brown, the first femora infuscated at the base. Abdomen black in front, brownish behind, with a broken white transverse band above near the middle, three pale chevrons behind, and a white spot just above the spinnerets. Venter of abdomen white, marked with two narrow black stripes which converge and joint in front of the spinnerets.

Carapace longer than broad, evenly convex, the sutures obsolete. Clypeus equal in height to scarcely the diameter of an anterior median eye. First row of eyes slightly narrower than the second, procurved, the median separated by their radius, subcontiguous with the somewhat larger lateral eyes. Second row of eyes essentially straight, the broadly oval median eyes set slightly obliquely, separated by one-half their radius, as far from the subequal lateral eyes. Median ocular quadrangle as broad as long and as wide in front as behind, the anterior median eyes smaller.

First femur with two spines near the distal end on the prolateral aspect. First tibia with six pairs of ventral spines, without distals, the basal pair weaker than the others. First metatarsus with 2–2–2–1 ventral spines, lacking distals. First leg: femur, 0.87 mm., patella, 0.39 mm., tibia, 0.84 mm., metatarsus, 0.76 mm., and tarsus, 0.44 mm. long. Fourth leg: femur, 0.92 mm., patella, 0.40 mm., tibia, 0.80 mm., metatarsus, 0.90 mm., and tarsus, 0.75 mm. long.

Epigynum as illustrated in Fig. 41.

TYPE LOCALITY.—Female holotype from Summerhaven, Mt. Lemmon, Santa Catalina Mountains, Arizona, July 14, 1940 (W. J. Gertsch).

This is a somewhat paler species than *Phrurolithus schwarzi*, new species. The abdomen is marked above with a transverse white band and the venter is variegated with two black stripes. The eyes of the posterior row are proportionately larger and nearer together, the median eyes slightly exceeding the lateral eyes and the anterior median in size. The epigyna are very distinct as shown in the figures.

Phrurolithus absurdus, new species

Figures 32 and 33

MALE.—Total length, 1.65 mm.

	Length	Width
CARAPACE	0.80 mm.	0.65 mm.
FRONT	0.20	0.25
STERNUM	0.50	0.43
LABIUM	0.10	0.14
MAXILLA	0.18	0.16
ABDOMEN	0.86	0.60

Integument of the carapace dark brown, marked with black radiating lines and with a black maculation just in front of the obsolete median groove. Sternum, mouth parts and coxae pale yellowish brown, somewhat infuscated. Legs pale yellowish brown, the femora darkened, especially on the prolateral surfaces. Abdomen nearly black above, covered with a shining brown scutum. Venter pale, with a dusky median stripe.

Structure in close agreement with *Phrurolithus alatus* Ivie and Barrows. Clypeus equal in height to two-thirds the diameter of an anterior lateral eye. All eyes large, the first row procurved, the median separated by their radius, subcontiguous with the larger lateral eyes. Second row of eyes procurved, the very large median subcircular eyes contiguous, slightly separated from the much smaller lateral eyes. Median ocular quadrangle slightly longer than broad(20.18), slightly narrowed in front (18/15), the posterior median eyes very much larger in the ratio 10:7.

First femur with two prolateral spines near the distal end. First tibia with five pairs of ventral spines, lacking distal spines. First metatarsus with 2–2–2–1 ventral spines, without distals. First leg: femur, 0.65 mm., patella, 0.26 mm., tibia, 0.55 mm., metatarsus, 0.54 mm., and tarsus, 0.35 mm. long. Tibia and patella IV, 0.80 mm. long.

Palpus as illustrated in Figs. 32 and 33.

TYPE LOCALITY.—Male holotype from Port Mayaca, Lake Okeechobee, Florida, March 29, 1938 (W. J. Gertsch).

This curious species is allied to *Phrurolithus alatus* Ivie and Barrows with which it agrees in having the tibial apophyses small, not distinctly joined together at the base to form a bifid apophysis as in most other species. In *absurdus* the dorsal apophysis is directed forward, whereas in *alatus* it is placed nearly at a right angle with the tibia.

Phrurotimpus dulcineus, new species

Figures 42, 43 and 44

FEMALE.—Total length, 2.30 mm.

	Length	Width
CARAPACE	0.90 mm.	0.66 mm.
FRONT	0.13	0.30
STERNUM	0.56	0.43
LABIUM	0.07	0.14
MAXILLA	0.23	0.14
ABDOMEN	1.40	0.90

Carapace yellow, marked with an irregular longitudinal dark stripe on each side, the margins with a narrow black seam. Eye group black. Sternum, mouth parts and coxae pale yellow, clothed sparsely with fine black hairs. Legs

concolorous with the carapace, the first tibia darkened except for a terminal yellow annulus. Dorsum of the abdomen dusky in front, black at the caudal end, with a white spot above the spinnerets. Venter white.

Clypeus equal in height to one-half the diameter of an anterior median eye. First row of eyes recurved as seen from in front, the median separated by one-third the diameter, subcontiguous with the subequal lateral eyes. Second row of eyes essentially straight, the large median nearly touching each other and also subcontiguous with the smaller lateral eyes. Median ocular quadrangle as long as broad, slightly narrowed in front (26/24), the anterior eyes very slightly smaller.

First femur with two prolateral spines near the end. First tibia with six pairs, the metatarsus with four pairs of ventral spines, both joints lacking distal spines. Tibia and patella I, 1.07 mm.; IV, 1.03 mm. long.

Epigynum as illustrated in Fig. 44.

MALE.—Total length, 1.50 mm.

	Length	Width
CARAPACE	0.75 mm.	0.57 mm.
FRONT	0.12	0.27
STERNUM	0.47	0.37
LABIUM	0.08	0.13
MAXILLA	0.19	0.17
ABDOMEN	0.80	0.45

Coloration essentially as in the female. Carapace only faintly marked with lateral dark stripes, the marginal seam distinct. First patella and two-thirds of femur dusky, the distal portion of femur white. Legs otherwise yellow, unmarked. Abdomen dusky above, covered with a yellow scutum, the venter white.

Clypeus equal in height to a radius of an anterior median eye. Eyes essentially as in the female, those of the front row equal in size. Second row of eyes essentially straight, the round median separated by one-fourth the diameter, as far from the subequal lateral eyes. Median ocular quadrangle slightly longer than broad (22/20), as broad in front as behind, the eyes subequal.

Leg spines as in female. Tibia and patella I, 0.85 mm.; IV, 0.85 mm. long.

Palpus as illustrated in Figs. 42 and 43.

TYPE LOCALITY.—Female holotype from Deland, Florida, March 25, 1939 (F. E. Lutz). Female paratype from west of Arcadia, Florida, March 31, 1938 (W. J. Gertsch). Male allotype from Marco Island, Florida, January 1, 1930 (W. M. Barrows). One male and three female paratypes from Dunedin, Florida, 1927 (W. S. Blatchley), in the Museum of Comparative Zoölogy.

This handsome spider is easily distinguished from other species by the details of the epigynum. The atriobursal orifices are much nearer the base, situated just in front of the receptacula seminis, than in all other species except *minutus*. It differs from that species in its much paler coloration, by the larger and more closely set eyes of the second row, and by the other details of the epigynum. The male palpus is not closely approximated by other species.

Phrurotimpus abditus, new species

Figure 45

FEMALE.—Total length, 2.30 mm.

	Length	Width
CARAPACE	0.95 mm.	0.75 mm.
FRONT	0.20	0.36
STERNUM	0.63	0.50
LABIUM	0.10	0.16
MAXILLA	0.25	0.18
ABDOMEN	1.35	0.86

Coloration of carapace and appendages as in *dulcineus*, the pattern somewhat darker. Abdomen black or nearly so, marked above with white chevrons. Venter pale.

Clypeus equal in height to the radius of an anterior median eye. First row of eyes procurved as seen from in front, the median separated by one-third the diameter, subcontiguous with the subequal lateral eyes. Second row of eyes distinctly procurved, the median separated by one-third the diameter, subcontiguous with the smaller lateral eyes. Median ocular quadrangle longer than broad (30/26), as wide in front as behind, the eyes subequal.

Leg spines as in *dulcineus*. Tibia and patella I, 1.23 mm.; IV, 1.32 mm. long.

Epigynum as illustrated in Fig. 45.

TYPE LOCALITY.—Female holotype from Gainesville, Florida, July 5, 1938.

This species is closely related to *dulcineus* with which it agrees in general appearance and structure. The eyes of the posterior row are more widely separated and the median are subequal in size to the anterior median eyes. The atriobursal orifices are placed farther forward, well removed from the receptacula seminis near the median furrow.

Phrurotimpus certus, new species

Figures 47 and 48

MALE.—Total length, 2.30 mm.

	Length	Width
Carapace	1.05 mm.	0.80 mm.
Front	0.15	0.35
Sternum	0.62	0.53
Labium	0.10	0.15
Maxilla	0.25	0.22
Abdomen	1.28	0.70

Color pattern similar to *borealis* but the whole spider is more strongly tinged with yellow. First patella and tibia dusky brown, the legs otherwise unmarked. Abdomen covered above with a pale yellow scutum through which is apparent a pattern of dusky chevrons. Venter of abdomen and sternum pale yellow, unmarked.

Clypeus equal in height to two-thirds the diameter of an anterior lateral eye. First row of eyes procurved, the median separated by their radius, contiguous with the subequal lateral eyes. Second row of eyes very gently procurved, essentially straight, the suboval median separated by one-third their long diameter, as far from the somewhat smaller lateral eyes. Median ocular quadrangle longer than broad (21/19), slightly narrowed behind (19/17), the eyes subequal in size.

First femur with two prolateral spines at distal end. First tibia with six, the metatarsus with four pairs of long ventral spines, without apical spines. Tibia and patella I, 1.30 mm.; IV, 1.35 mm. long.

Palpus as illustrated in Figs. 47 and 48.

Type Locality.—Male holotype from five miles east of Luray, Virginia, July 5, 1933 (W. J. Gertsch). Male paratype from Mobile, Alabama (N. Banks), in the Museum of Comparative Zoölogy.

This species resembles *borealis* and *illudens* in having the distal end of the tibial apophysis of the palpus broad and more or less excavated. In *certus* the tibial apophysis (Fig. 48) is free near the base of the tibia, leaving a deep groove, whereas in the other species (Fig. 51) the tibial apophysis is attached broadly to the distal end of the tibia.

Phrurotimpus illudens, new species

Figures 49, 50 and 51

Female.—Total length, 3.50 mm.

	Length	Width
Carapace	1.30 mm.	1.10 mm.
Front	0.20	0.50
Sternum	0.80	0.60
Labium	0.20	0.14
Maxilla	0.33	0.21
Abdomen	1.95	1.17

Coloration in both sexes in close agreement with *alarius* and related species.

Clypeus equal in height to the radius of an anterior median eye. First row of eyes moderately procurved, the median separated by one-fifth their diameter, contiguous with the slightly smaller lateral eyes. Second row of eyes essentially straight, the oval median set obliquely, subcontiguous with themselves and with the subequal lateral eyes. Median ocular quadrangle slightly longer than broad (36/33), as wide in front as behind, the eyes subequal in size although the anterior median appear to be larger. Median suture a narrow linear groove.

First femur with two prolateral spines near the distal end. First tibia with seven pairs of ventral spines. First metatarsus with 2–2–2–1 ventral spines. Tibia and patella I, 1.73 mm.; IV, 1.95 mm. long.

Epigynum as illustrated in Fig. 49.

Male.—Total length, 2.50 mm.

	Length	Width
Carapace	1.20 mm.	0.96 mm.
Front	0.20	0.43
Sternum	0.70	0.54
Labium	0.14	0.20
Maxilla	0.30	0.22
Abdomen	1.34	0.80

Eyes as in the female. Clypeus equal in height to about the radius of an anterior lateral eye. Leg spines as in the female. Tibia and patella I, 1.70 mm.; IV, 1.83 mm. long.

Palpus as illustrated in Figs. 50 and 51.

Type Locality.—Male holotype, female allotype and paratype from one mile north of Lyons, Georgia, June 12, 1935 (W. J. Gertsch).

This pretty species is very closely related to *Phrurotimpus borealis* Emerton with which it agrees in coloration and general structure. It may be distinguished by the embolus which lacks the tubercle or spur near the distal end found in *borealis*. The terminal portion of the tibial apophysis of the palpus is not so deeply excavated as in that species.

Laudetia, new genus

Clypeus low, equal in height to the radius of the small anterior median eye. Carapace longer than broad, relatively low. Eyes of the first row essentially straight, subcontiguous, the median smaller than the lateral. Second row of eyes strongly recurved, the median separated by a dull diameter, nearer the larger lateral eyes. Median ocular quadrangle broader than long, narrowed in front, the anterior median smaller. Chelicera with two teeth on the lower margin. First leg with five pairs of movable ventral spines beneath the tibia, the metatarsus with two pairs. Tibia of male palpus with a single retrolateral apophysis.

GENOTYPE.—*Laudetia dominicana*, new species.

This genus agrees with *Phrurotimpus* in general structure. It may be distinguished by the more strongly recurved posterior row of eyes and the greater separation of the posterior median eyes. The tibial apophysis of the male palpus bears a single apophysis.

Phrurolithus portoricensis and *insularis*, both described from Porto Rico by Dr. A. Petrunkevitch (1930, Trans. Connecticut Acad. Arts and Sci., XXXI, pp. 87–91, Figs. 73–76), belong to this genus.

Laudetia dominicana, new species

Figures 52 and 53

MALE.—Total length, 2.00 mm.

	Length	Width
CARAPACE	1.10 mm.	0.87 mm.
FRONT	0.15	0.46
STERNUM	0.65	0.57
LABIUM	0.16	0.18
MAXILLA	0.33	0.20
ABDOMEN	0.90	0.70

Carapace dull yellowish brown, faintly marked with radiating dusky lines, smooth and shining. Underside of the carapace and the legs slightly paler, clothed sparsely with inconspicuous hairs. Abdomen gray, with a dorsal pattern of black chevrons, the venter white. Base of the abdomen with an inconspicuous yellowish scutum.

Carapace longer than broad, evenly convex, rather broad in front, the median groove a short linear depression situated back two-thirds the length, the cephalic sutures obsolete. Clypeus low, equal in height to the radius of the small anterior median eyes. Eye group equal to nine-fourteenths the width of the head at the second row of eyes. First row of eyes essentially straight as seen from in front, the eyes subcontiguous, the median two-thirds the diameter of the lateral eyes. Second row of eyes strongly recurved, the median separated by their full diameter, half as far from the lateral eyes. Median ocular quadrangle broader than long (25/22), narrowed in front (25/16), the anterior median eyes smaller. Chelicera with two small teeth on the lower margin, with three larger ones on the upper margin.

First leg unarmed except as follows: tibia with five pairs of ventral spines, none of them distal; metatarsus with two pairs of ventral spines, lacking distals. First leg: femur, 0.83 mm., patella, 0.42 mm., tibia, 0.76 mm., metatarsus, 0.60 mm., and tarsus, 0.36 mm. long. Fourth leg: femur, 0.86 mm., patella, 0.36 mm., tibia, 0.70 mm., metatarsus, 0.80 mm., and tarsus, 0.47 mm. long.

Palpus as illustrated in Figs. 52 and 53.

TYPE LOCALITY.—Male holotype from Laudet, Dominica, British West Indies, June 12, 1911 (F. E. Lutz).

Neoanagraphis pearcei, new species

Figure 46

MALE.—Total length, 5.75 mm.

	Length	Width
CARAPACE	2.90 mm.	2.50 mm.
FRONT	0.32	1.00
STERNUM	1.35	1.29
LABIUM	0.37	0.43
MAXILLA	0.78	0.38
ABDOMEN	3.00	2.00

Carapace and appendages pale yellowish brown. Abdomen gray to white, unmarked.

Structure in close agreement with *Neoanagraphis chamberlini* Gertsch and Mulaik. Clypeus equal in height to the diameter of an anterior median eye. First row of eyes very gently procurved as seen from in front, essentially straight, the median separated by about one-half their radius, as far from the somewhat smaller lateral eyes. Second row of eyes essentially straight, the median separated by one diameter, as far from the subequal lateral eyes. Median ocular quadrangle as broad as long, slightly narrowed in front (27/32), the anterior median eyes larger. Sternum subcordate, truncated in front, slightly produced behind in front of the nearly contiguous posterior coxae. Chelicera with two teeth on the lower margin.

All femora with 1–1–1 prolateral, retrolateral and dorsal spines. First and second tibiae with four pairs of ventral spines, the apical pair weak. Posterior tibiae with three ventral pairs. First and second metatarsi with one median prolateral, one median retrolateral and a basal and a submedian pair of ventral spines. Third and fourth tibiae with three pairs of ventral spines. All tarsi flexible, with a series of false sutures in the distal half of the joint. Posterior tarsal claw very long, the series of teeth placed near the base. First leg: femur, 4.20 mm., patella, 1.30 mm., tibia, 4.30 mm., metatarsus, 4.00 mm., and tarsus, 2.20 mm. long. Fourth leg: femur, 4.65 mm., patella, 1.30 mm., tibia, 4.35 mm., metatarsus, 6.00 mm., and tarsus, 2.35 mm. long.

Palpus as illustrated in Fig. 46.

TYPE LOCALITY.—Male holotype from Yermo, San Bernardino County, California, October 28, 1939 (W. M. Pearce).

Neoanagraphis chamberlini Gertsch and Mulaik was based on a single male from the White Sands regions of New Mexico. The genus was placed tentatively in the Gnaphosidae because of the moderate separation of the inferior spinnerets. More recent study, especially of the palpus,

would seem to indicate that the relationship is probably with the Clubionidae, near such genera as *Syspira* and *Liocranoides*.

The discovery of a second species of *Neoanagraphis* by Mr. W. M. Pearce at Yermo, California, is of great interest. *Neoanagraphis pearcei* differs from *chamberlini* in many respects of which the following are most significant. The eyes of the posterior row are essentially straight, not moderately recurved. The first tibiae are armed beneath with four, rather than three, pairs of spines. The tibial apophysis of the palpus is bifid.

Lauricius hooki, new species

FEMALE.—Total length, 11.50 mm.

	Length	Width
CARAPACE	5.50 mm.	4.50 mm.
FRONT	0.46	2.55
STERNUM	3.20	2.35
LABIUM	0.96	0.95
MAXILLA	1.65	0.85
ABDOMEN	6.00	4.00

Carapace dark reddish brown, clothed evenly with soft procumbent hairs and set with suberect short black hairs. Clypeus with a series of twelve long bristles and smaller intermediate ones. Sternum and coxae yellow, set evenly with erect black hairs. Mouth parts reddish brown, clothed with erect black hairs. Legs concolorous with the carapace. Dorsum of abdomen gray with a brownish tinge, margined in black and marked with small black spots. Venter uniformly pale gray.

Clypeus very low, equal in height to scarcely the radius of an anterior lateral eye. Carapace low, flat above, the median groove a distinct linear depression, the cephalic sutures broad grooves. First row of eyes very lightly procurved, essentially straight, the median eyes separated by three-fifths their diameter, as far from the subequal lateral eyes. Second row of eyes broader (10/7), moderately recurved, the median separated by twice their diameter, very slightly nearer the subequal lateral eyes (40/44). Median ocular quadrangle broader than long (86/63), narrowed in front (86/65), the eyes subequal.

First leg spined as follows: femur with weak dorsal and prolateral spines; tibia with 2–2–2 or 2(1)–2(1)–2 ventral spines; first metatarsus with two pairs of ventral spines, lacking distals. First leg: femur, 4.50 mm., patella, 2.60 mm., tibia, 3.80 mm., metatarsus, 3.30 mm., and tarsus, 1.70 mm. long. Fourth leg: femur, 4.50 mm., patella, 2.25 mm., tibia, 4.15 mm., metatarsus, 4.30 mm., and tarsus, 1.80 mm. long.

MALE.—Total length, 11.50 mm.

	Length	Width
CARAPACE	5.15 mm.	4.15 mm.
FRONT	0.50	1.95
STERNUM	2.70	1.85
LABIUM	0.83	0.77
MAXILLA	1.60	0.70
ABDOMEN	6.50	4.00

Coloration and structure in close agreement with the female. Eye relations and spination of legs as in the female, but the first tibia usually has only three pairs of ventral spines, lacking the intermediate ones. First leg: femur, 4.80 mm., patella, 2.35 mm., tibia, 4.80 mm., metatarsus, 4.50 mm., and tarsus, 2.40 mm. long. Fourth leg: femur, 5.15 mm., patella, 2.15 mm., tibia, 5.00 mm., metatarsus, 5.35 mm., and tarsus, 2.40 mm. long.

TYPE LOCALITY.—Female holotype and paratype from seventeen miles northeast of Whiteriver, White Mountains, Arizona, July 8–10, 1940 (Luther Hook). Male and female paratypes from the Santa Catalina Mountains, Arizona. Female and immature paratypes from Bear Wallow, Mt. Lemmon, Santa Catalina Mountains, Arizona, July 12–15, 1940 (Gertsch and Hook). Male allotype, male and female paratypes from Otero County, New Mexico, August, 1934 (S. Mulaik).

This species was recorded from Arizona and New Mexico under the name of *Lauricius hemicloeinus* Simon (Gertsch, 1935, American Museum Novitates, No. 805, p. 11, Figs. 16–19). *Lauricius hooki*, new species, is considerably smaller (averaging 12.00 mm. as compared with 18.00 mm.). The median free appendage of the female epigynum is shorter than in *hemicloeinus*.